SUGGESTED FLIGHT SCHEDULES AND PLANS FOR
AFOREMENTIONED PROGRAMS

Dynamics of Atmospheric Motions, Atmospheric Dynamics, Variability of Meteorological Elements

Duration of flights - N/A

Length of flights - 200-2500 miles

Altitudes - all, particularly above 30,000 feet

Seasons - all

Time of day - all

Areas/Lat.-Long. - all latitudes and across equator

No. of Flights:

1. General and climatological flights:

   North latitudes (50-90°N) - 10 flights

   Mid latitudes (20-50°) - 10 flights

   Equatorial latitudes (20S-20N) - 10 flights

   South latitude (20S-60S) - 10 flights

2. Specific weather phenomena flights:

   Stratospheric winter polar jet stream - 5-10 flights

   Sub-tropical jet stream - 5-10 flights

   Cyclones in various stages of development - 15 flights

   Stratospheric summer easterlies - 5-10 flights

   Terrain effect on atmospheric flow - 10 flights

   Organized convective circulations - 5-10 flights

   Fronts and troughs - 15 flights

   Anticyclones - 5-10 flights

   Severe storm (tornado, thunderstorm, hurricane) - 10 flights

Flight Plans - straight and level for general synoptic type flights, sounding and cross sectional patterns for specific weather phenomena flights.

Contrail Suppression

Duration - N/A

Length - N/A

Altitudes - all

Seasons - all, particularly Jan-Feb., July and August

Time of day - mainly daylight hours

Areas/Lat.-Long. - all

No. of Flights:

1. July-Aug. - 0-25°N - 25 flights
2. Jan-Feb. - 75-90°N - 25 flights
3. All seasons - 50 flights

Special Requirements:

1. Requires chase aircraft to observe contrails, especially in arctic night.
2. Requires radiosonde in area and simultaneously with flights whenever possible.

Flight Plan - Climb to maximum height at which contrails form; descend at small increments in height; fly level and at varying power settings, etc. to determine exact point at which contrails form.

Ozone Variability

Duration - N/A

Length - N/A

Altitudes - all, especially above 30,000 feet

Seasons - all, particularly winter

Time of day - N/A

Areas/Lat.-Long. - all, particularly near 75°N during Jan.-Feb.

No. of Flights:

1. Vertical and horizontal distribution:

   North latitude (50-90°) - 30 flights

   Mid latitude (20-50°) - 25 flights

   Equatorial latitude (20S-20N) - 10 flights

   South latitude (20-60S) - 5-10 flights

2. Special phenomena

   Mountain waves - 10 flights

   Tropopause breaks - 10 flights

   Severe storm areas - 10 flights

Flight Plans - (1) Sounding type climb to determine vertical distribution

(2) Straight and level flights at various altitudes to determine horizontal distribution.

Atmospheric Optics

Duration - Short as possible

Length - N/A

Altitudes - all, in intervals of 5000 feet

Seasons - all

Time of day - intervals of 10 degrees solar elevation from sunrise to maximum solar elevation

Latitudes - all

Areas - wide expanses of desert terrain, heavily frosted areas, bare farm land, crop covered farm land, industrial areas, snow covered, water areas remote from land, cloud covered of several classes of clouds and varying amounts from clear to overcast.

Special flights to be accomplished at sunrise and sunset.

No. of Flights: Estimated 500 flights to cover complete idealized requirement - minimum number of flights in order of 50.

Flight Plans: Complete 360° turns at all altitudes in increments of 5000 feet.

Interplanetary Matter

Duration - Minimum 1/4 hour at selected altitude

Length - N/A

Levels - all - especially above 35,000 feet, mostly at peak altitude

Seasons - all

Time of Day - N/A

Areas/Latitudes - all

No. of Flights: Ten flights at each level (increments of 5-10,000 feet) at all latitudes (increments of 10°) - 500 flights

Samples can be obtained simultaneously with other flights

Flight Plans: Level flight during sampling.

Cloud Physics

Duration - one hour

Length - N/A

Altitude - all altitudes

Seasons - all

Time of Day - mostly daylight

Areas/Latitudes - all

Approximately 50 flights

Flight Plans: Varied, depending on particular investigation; no set pattern can be delineated at this time.

Meteorological Satellite

Duration - three to five hours

Length - up to 500 miles, occasional maximum range

Altitudes - above 50,000 feet

Season - all

Time of Day - 10-25 per cent of total flights during night hours

Areas/Latitudes - all

Approx. No. of Flights

Special Notes: Most flights will be to test satellite equipment and will rarely repeat more than three times any particular type or method of test. Areas, latitudes, etc. will

depend on particular device being tested which is unknown at this date.

Flight Plans: Probably straight and level, with occasional sounding type flights.

Plans and schedules have not yet been devised for the Geophysical Surveillance Research and Infrared Spectroscopic Techniques and Ionospheric Characteristics programs.